

JANITROL

GAS-FIRED



SURFACE COMBUSTION CORPORATION • TOLEDO, OHIO

THE WORLD'S LARGEST OF INDUSTRIAL HEAT

PROD.



JANITROL

THE UNIVERSALLY ACCEPTED CONDITIONING EQUIPMENT.. EXPERIENCE IN MANUFACTURING



Series GC
Gravity Heaters

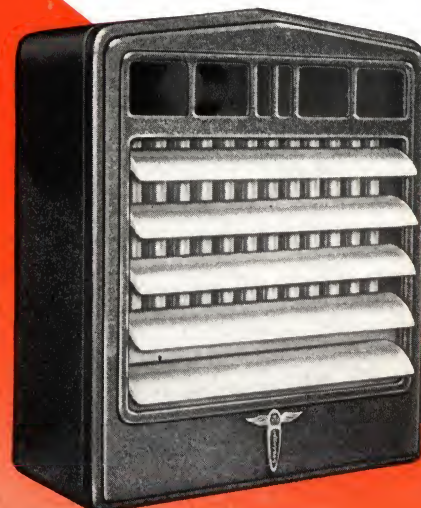


Series BC
Conditioners

Pioneer in the use of gas as a fuel, the Surface Combustion Corporation has devoted thirty years exclusively to the development and production of gas-fired equipment for industrial heat treat processes and for space heating purposes, domestic, commercial and industrial.

Through its wide spread experience in the application of gas for fuel purposes and with extensive research facilities, Surface Combustion developed the first *conversion burner* for the burning of gas in household furnaces and boilers. In the past ten years thousands of these units have been installed by gas companies everywhere. The widely known *Columbus* and *Heatmaster* warm air house heating equipment, manufactured by Surface Combustion, was one of the first complete lines designed and built to burn gas.

By continual development and improvement, resulting from extensive experience and constant investigation, the makers of Janitrol

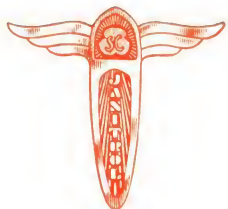


Series U and C
Unit Heaters

BEST MANUFACTURER TREATING EQUIPMENT

UCES

TROL



GAS-FIRED HEATING AND AIR- ..BACKED BY THIRTY YEARS GAS-FIRED PRODUCTS EXCLUSIVELY

have produced equipment that fulfills all the requirements for perfect winter air conditioning—together with the largest and most advanced line of gas heating equipment on the market.

Trained sales engineers, located in many branch offices throughout the country, work with architects, heating engineers, gas companies and dealers everywhere. This makes possible direct contact with individual heating and air conditioning problems and permits close cooperation between all concerned from layout to completed installation.

The large contribution made by the Surface Combustion Corporation to the advancement and acceptance of gas heat, for domestic, commercial and industrial purposes, has earned for this company the endorsement of both the gas industry and the heating industry. Backed by this endorsement and the reputation of its manufacturer, *Janitrol* equipment can be specified with full assurance of complete satisfaction.



Series CA
Conditioners



Series CF Conditioners
Types B, C and D



Series CF Conditioners
Type A



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"CF" GAS-FIRED

BEAUTIFUL APPEARANCE AND COMPACT DESIGN

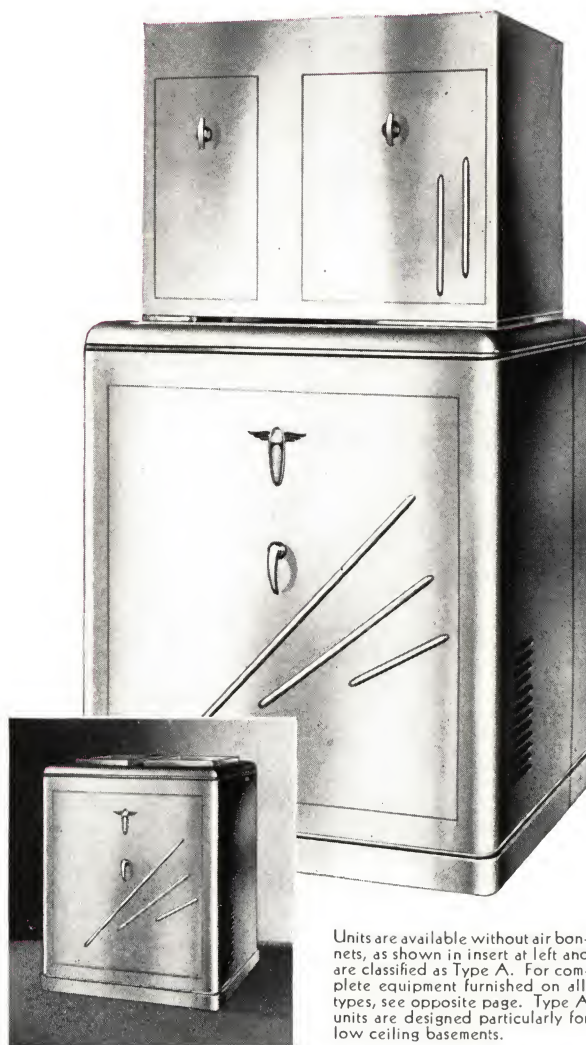
The unmatched beauty of the Janitrol CF Conditioner is due to its rich opalescent blue finish, its sparkling chromium trim, the artistry of its accouterments. Small and compact, it blends into its surroundings so that the basement may truly be the recreational headquarters of the home. The casing completely conceals all gas, water and electric supply lines and is constructed in such a manner that no screws, bolts or nuts mar its surface. A most remarkable fact is that the entire line of Janitrol Conditioners are identical in front view dimensions and appearance—really an achievement in engineering and artistic design.

A COMPLETE LINE FOR EVERY REQUIREMENT

There is a proper type and size Janitrol CF Conditioner to fill every home heating need. This line is complete, being furnished in five sizes—90,000, 120,000, 150,000, 180,000 and 240,000 hourly Btu input capacity. When a home is of size which requires a greater input capacity than that furnished by the largest unit, experience with many installations has shown that to obtain the most satisfactory results, two separate units, individually controlled, should be installed.

SIMPLE TO INSTALL

One of the outstanding features of Janitrol Conditioners is the extreme ease with which they are installed. There are no complicated details—everything has been designed for simplicity and rapidity of installation. The Janitrol CF Conditioner offers the following list of exclusive installation features—leveling studs fitted in the base for easy leveling—a self-sealing felt ring on the base which eliminates the necessity of cementing the unit to the floor—simplified blower mounting studs attached to the base—simplified motor mounting easily adjustable by the manipulation of one wing nut. Furthermore, the units have been designed for use with small size, standardized ducts—a distinct advantage in speeding up installation and reducing cost.



Units are available without air bonnets, as shown in insert at left and are classified as Type A. For complete equipment furnished on all types, see opposite page. Type A units are designed particularly for low ceiling basements.

OUTSTANDING "CF" FEATURES

Cutaway view at left illustrates compact, yet readily accessible, arrangement of unit.

HEATER . . . Cast iron with multiplicity of embedded copper rods for conduction of heat to exterior of heater. Exposed end of each rod is equipped with a helical copper fin thus exposing a large effective heating surface to the air to be heated.

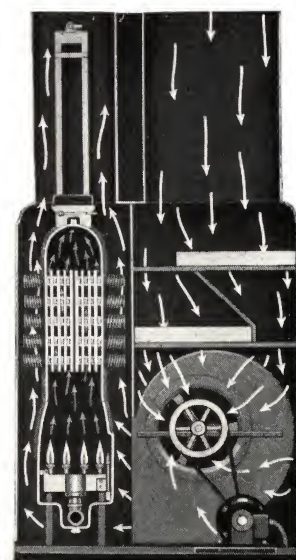
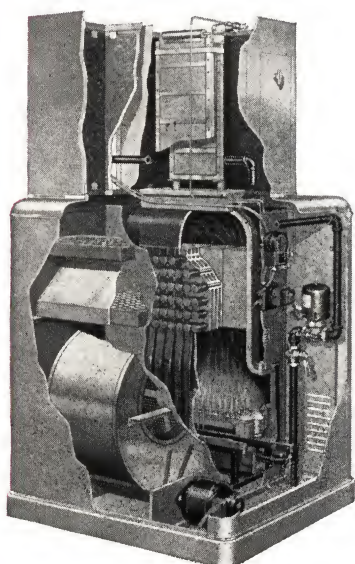
BURNER . . . Janitrol multi-inspirator type consisting of a series of individual burners with multi-port heads of high-temperature refractory material. Each head burns with short, sharp flame.

BLOWER . . . Multi-blade centrifugal type with felt vibration insulation between blower outlet and casing partition. Rubber mounted to base of unit to prevent vibration.

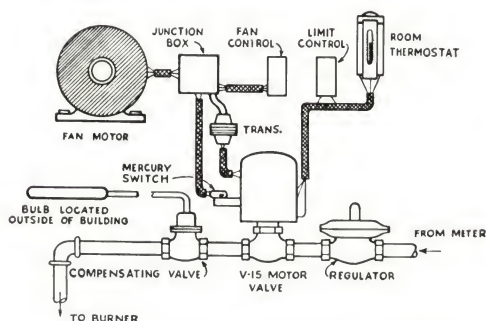
MOTOR . . . Mounted on aligned base with single thumb screw adjustment for proper belt tension.

HUMIDIFIER . . . Exclusive refractory plate type mounted in cast iron overflow pan atop heater unit. Water, discharged through self-cleaning nozzle into chamber, at top of humidifier assembly, trickles uniformly over plates of porous, absorbent, refractory material. The plates afford large evaporating surface to heated air passing over them. Solenoid water valve opens when blower is in operation, closes when blower stops.

FILTERS . . . Replaceable type composed of strands of spun glass coated with special adhesive.



WINTER AIR CONDITIONER



COMPENSATING CONTROL SYSTEM

JANITROL CONTROL SYSTEMS

(1) **JANITROL COMPENSATING CONTROL SYSTEM (Furnished with Type D)**—This system is designed to regulate the heat supplied to the house directly in proportion to the heat losses of the house by controlling both the amount of gas burned and the volume of air delivered. Thus, heat is supplied only at the required rate resulting in constant, uniform temperature and much longer periods of blower operation.

When heat is required, thermostat opens V-15 motor valve admitting gas to burner. The amount of gas admitted to burner is regulated by the compensating valve. This valve is actuated by the outside temperature by means of a temperature bulb mounted outside the house. When V-15 gas valve opens, a mercury switch, on valve arm, starts the two-speed blower motor at low speed, (1140 r.p.m.). At low speed, blower delivers approximately 50% of maximum volume. Blower continues to operate at low speed as long as air temperature in unit is below 175° F. If outside temperature is mild, gas input to burner will be low and heating cycle may be completed with fan operating at low speed.

When outside temperature is low and gas input is higher, air temperature in unit eventually will reach 175° F. At this temperature, blower motor automatically switches to high speed, (1725 r.p.m.), increasing air delivery to maximum. This continues until air temperature in unit drops to 125° F., when blower motor switches back to low speed. When weather is extremely cold, blower may operate at high speed until heating cycle is completed. When room temperature reaches thermostat setting, thermostat closes V-15 gas valve and blower motor stops.

(2) **CUSTOMARY SYSTEM (Furnished with Types A, B and C)**—Thermostat opens V-15 gas valve when heat is required. When air in unit reaches a predetermined temperature, an automatic switch starts single speed blower motor. When room temperature reaches thermostat setting, thermostat closes V-15 gas valve. Blower motor operates until air temperature in unit reaches predetermined minimum.

ENGINEERING DATA

Catalog No.	Btu Input per Hour	*Btu Output At Register	†Approx. C.F.M. Delivered At Register	GAS CAPACITY Cu. Ft. per Hour At Various Btu			BLOWER DATA			
				550	800	1000	Diam. of Wheel	Width of Wheel	No. of Wheels	R.P.M. At 3/16" Static
CF 90-37	90,000	64,800	900	164	113	90	14"	7"	1	580
CF120-37	120,000	86,400	1200	218	150	120	14"	10"	1	570
CF150-37	150,000	108,000	1500	273	188	150	14"	14"	1	570
CF180-37	180,000	129,600	1800	328	225	180	14"	7"	2	590
CF240-37	240,000	172,800	2400	436	300	240	14"	10"	2	610

*Allows for 10% heat loss from warm air ducts between bonnet and register. This is normal loss for average installations. Longer than average ducts, type of duct covering, duct exposure, whether or not basement is heated, etc., should be considered and Conditioner sized accordingly.

†It is assumed that approximately 75% of Btu input rating will be delivered and, consequently, C.F.M. shown will be approximately the volume of air passing through duct system and is volume on which the duct system should be designed. The approximate C.F.M. is based on air temperature between 140° and 150° F.

DIMENSIONS IN INCHES

Catalog No.	DIMENSIONS				Flue Diam.	*Gas Conn.	H.P.	MOTOR DATA			
	A	B	C	D				Types A, B & C	Type D	Type D	R.P.M.
CF 90-37	33 3/4	23 3/4	43 3/4	23 1/2	5	3/4	1/6	S.P.	1725	CAP.	1725-1140
CF120-37	38	27 3/4	48 1/4	28	5	1	1/4	S.P.	1725	CAP.	1725-1140
CF150-37	43 3/4	33 3/8	55	33 3/4	6	1	1/3	CAP.	1725	CAP.	1725-1140
CF180-37	48 1/4	38 1/8	59 1/2	38 1/4	6	1 1/4	1/3	CAP.	1725	CAP.	1725-1140
CF240-37	57 3/4	47 3/8	70	47 3/4	7	1 1/4	1 1/2	CAP.	1725	CAP.	1725-1140

*Size of manifold connection—not size of gas supply line.

S.P.—Split phase type motor.

CAP.—Capacitor type motor.

†All types CF240-37 Conditioners supplied with 220 V.-60 cyc.-1 phase-1 1/2 h.p. motor. The standard 3-wire service, normally available, affords 110-220 volt service. Control circuit operates on 110 volt-60 cycle current.

STANDARD EQUIPMENT

All "CF" Conditioners are available in four different types based on equipment furnished.

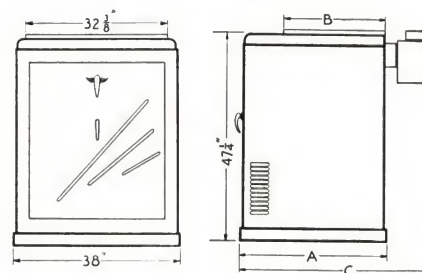
Type A—Includes insulated cabinet, without bonnet; one-piece cabinet base; cast iron heat exchanger with extended copper rod and fin heating surfaces; multi-inspirator burner; automatic pilot and fittings; draft diverter; V15A electric motor gas valve, transformer and wire; T11A Acatherm thermostat with 30 ft. of triplex wire; combination blower and temperature limit control, rubber insulated blower assembly, resilient base motor with adjustable base and adjustable pulley; renewable filters; main line shut-off cock; adjustable gas pressure regulator; cast iron evaporating pan, copper float tank, pipe strap valve, 10 ft. copper tubing and fittings. A summer switch may be installed to control the blower for summer operation.

Type B—In addition to Type A equipment, the Type B includes bonnet with access doors; bonnet lined with sound-deadening material.

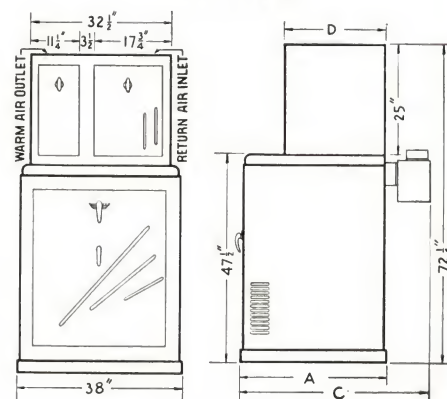
Type C—Includes all Types A and B equipment plus the Janitrol refractory plate type humidifier, low voltage solenoid water valve with transformer, pressure gauge, water pressure regulator, strap valve, 10 ft. copper tubing and fittings. Humidity control obtained by adding a humidistat.

Type D—Includes all Type C equipment and the Janitrol Compensating Control System in place of the customary controls. The Janitrol Compensating Control System includes a two-speed motor (1140-1725 R.P.M.), a two-contact fan control, limit control, V15C motor valve, outside temperature bulb with 25 ft. of capillary tubing and bellows-operated compensating valve. Not available for 25 cycle.

TYPE A



TYPES B, C & D





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"CA" GAS-FIRED

A MODERN UNIT AT MODERATE PRICE

The Janitrol CA Conditioner is designed especially for installation in the medium class home where modern winter air conditioning is desired but economy is necessary. Made in a complete range of sizes from 60,000 Btu hourly input capacity to 240,000 Btu hourly input capacity, it incorporates much of the equipment furnished with the CF series. Fully automatic in operation, the CA Conditioner fulfills the requirements of true winter air conditioning by mechanically circulating filtered, warmed, humidified air in every room.

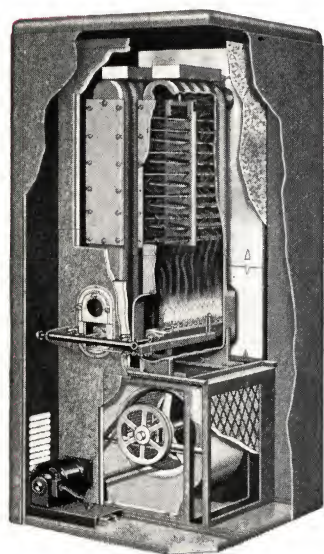
Here, we believe, is the greatest medium-priced value we have ever been able to offer—a unit so obviously better that it will satisfy those who want all of the features of winter air conditioning but who do not want to invest in de luxe equipment.

"CA" CONSTRUCTION FEATURES

CASING . . . high grade furniture steel finished in rich tapestry blue crinkle. No bolts, nuts or screws mar the appearance of the unit as all joints are of the slip seal type and are air tight. All control equipment, piping and electric connections are concealed inside the casing yet are easily available through large access doors.

BASE . . . heavy gauge steel plate with angle edge forming connections for casing sides and interior partitions.

HEATER . . . twin heaters are rigidly mounted directly above the blower to afford extreme compactness and provide large heating capacity in minimum space. Heaters are constructed of heavy steel plate, corrugated vertically. In addition to providing ample heating surface, these corrugations serve to make the heaters strong and rigid. Being vertical, the corrugations are streamlined with the upward flow of the air providing full contact with the air over the entire area of the heaters. This assures maximum heat transfer and high efficiency in operation.



BURNER . . . exclusive multi-inspirator type consisting of a multiplicity of individual primary air mixers each producing a short, sharp flame. Individual multi-port burner heads make possible this type flame without flashback even when the gas input is reduced. Burner design is such that the gas pipes in which the orifices are drilled do not contact the individual burner tubes; consequently, the tubes remain relatively cool and retain full capacity after hours of continuous operation. Burners ignite quietly, operate quietly and shut off quietly.

FILTER . . . replaceable, spun glass type with adhesive coating, removes dust, dirt and pollen before air enters blower.

BLOWER . . . centrifugal, multi-blade type mounted to the casing base with rubber grommets. This method of mounting, together with felt insulation around the discharge opening, eliminates vibration and assures extremely quiet blower operation.

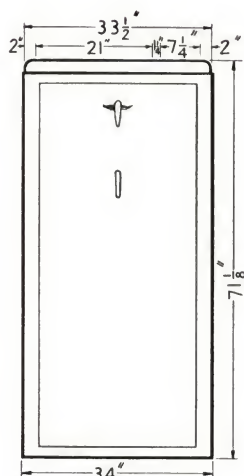
HUMIDIFIER . . . pan type with large pan-humidifier mounted on top of each heater. The water is heated and its evaporation thereby accelerated. V-shaped interior of pan permits regulation of water level and thus provides a means to control humidity. A copper water supply tank is mounted on the rear of the casing. In this tank a ball-float opens and closes a water valve to maintain the water in the pans at the desired level.

SERIES "BC" CONDITIONERS

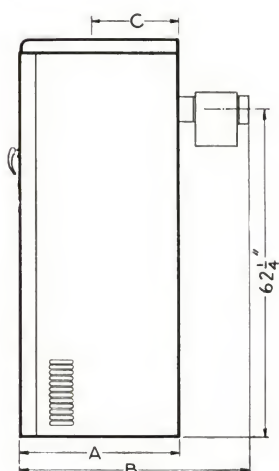
Designed for low cost homes, available in two models: No. BC45-37 with 45,000 Btu hourly input and No. BC90-37 with 90,000 Btu hourly input. Automatic in operation. Illustrated on page 2. Full particulars furnished on request.



WINTER AIR CONDITIONER



Front View



Side View

ENGINEERING DATA

Model No.	Btu Input per Hour	*Btu Out-put At Register	†Approx. C.F.M. Delivered At Register	Gas Capacity Cu. Ft. per Hour At Various Btu			BLOWER DATA			
				550	800	1000	Dia. of Wheel	Width of Wheel	Ns. of Wheels	R.P.M. At 1/2" Static
CA 60-37	60,000	43,200	600	109	75	60	14"	7"	1	525
CA 90-37	90,000	64,800	900	164	113	90	14"	7"	1	550
CA120-37	120,000	86,400	1200	218	150	120	14"	10"	1	550
CA150-37	150,000	108,000	1500	273	188	150	14"	14"	1	550
CA180-37	180,000	129,600	1800	328	225	180	14"	7"	2	550
CA240-37	240,000	172,800	2400	436	300	240	14"	10"	2	550

Note: Symbols refer to explanatory notes under first table on page 5.

STANDARD EQUIPMENT

CA Conditioners are available with three different types of controls. **WITH STANDARD CONTROLS**—Includes insulated cabinet; cabinet base with integral motor mounting; two heavy steel plate corrugated heat exchangers; multi-inspirator burners; main line shut-off cock; adjustable gas pressure regulator; automatic pilots with fittings; draft diverter; electric solenoid gas valve, relay, BX conduit and fittings; T11A Aerotherm thermostat with 30 ft. of triplex wire; limit control; rubber mounted blower assembly, resilient base motor; replaceable filters; evaporating pans; copper float tank, pipe strap valve, and 10 ft. copper tubing and fittings. A fan control (No 6031) may be installed but is not supplied as standard equipment.

WITH TYPE V-5 CONTROLS—Equipped the same as conditioners with standard controls except that a V15A motor gas valve and an L101A combination limit and fan control (SC part No. 6325) are substituted for the standard solenoid gas valve, relay and limit control.

WITH TYPE V-7 CONTROLS—Equipped the same as conditioners with standard controls except that a V15C motor gas valve and an L101A combination limit and fan control (SC Part No. 6325) are substituted for the standard solenoid gas valve, relay and limit control.

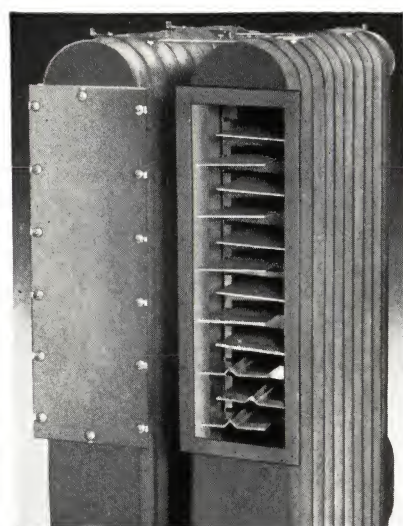
A summer blower switch may be installed to control the blower for summer operation on all three types.

DIMENSIONS IN INCHES

Catalog No.	DIMENSIONS						Flue Dia.	*Gas Conn.	MOTOR DATA		
	A	B	PLENUM CHAMBER						H.P.	Type	R.P.M.
			Warm Air		Return Air						
			Width	Depth-C	Width	Depth-C					
CA 60-37	28 ³ / ₈	40 ³ / ₈	21	15 ¹ / ₂	7 ¹ / ₄	15 ¹ / ₂	4	³ / ₄	¹ / ₈	S.P.	1725
CA 90-37	33 ³ / ₈	47	21	20 ¹ / ₂	7 ¹ / ₄	20 ¹ / ₂	5	³ / ₄	¹ / ₈	S.P.	1725
CA120-37	39 ¹ / ₈	52 ¹ / ₂	21	26	7 ¹ / ₄	26	5	³ / ₄	¹ / ₄	S.P.	1725
CA150-37	43 ³ / ₈	58 ³ / ₈	21	30 ³ / ₄	7 ¹ / ₄	30 ³ / ₄	6	1	¹ / ₄	S.P.	1725
CA180-37	51 ³ / ₈	66 ³ / ₈	21	38 ¹ / ₄	7 ¹ / ₄	38 ³ / ₄	6	1 ¹ / ₄	¹ / ₈	CAP.	1725
CA240-37	62 ³ / ₄	78 ³ / ₈	21	49 ³ / ₈	7 ¹ / ₄	49 ³ / ₈	7	1 ¹ / ₄	¹ / ₈	CAP.	1725

*This is the size of the manifold connection—not the size of the gas supply line.

S.P.—Split phase type motor. CAP.—Capacitor type motor.



Twin Type Heater "CA" Conditioner

HOW AIR IS CONDITIONED

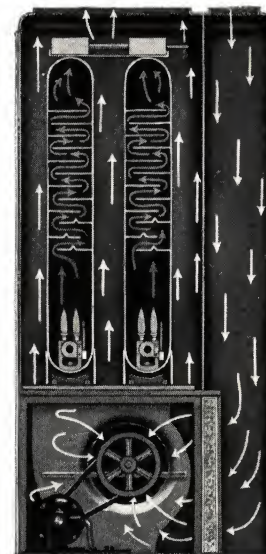
Air from the return ducts is introduced into the unit either at top, or through side or bottom. First it passes through the filter where it is cleaned; thence through the blower which discharges it upward over the vertically corrugated heaters where it is quickly warmed. Humidifiers are located on top the heaters so that all air must flow over them. The conditioned air is then conveyed through the warm air ducts into the rooms.

HOW HEAT IS TRANSFERRED

The hot gases of combustion, rising through the interior of the heater, are directed by the interior baffles. These baffles are staggered to force the gases through a long and extended passage—both vertical and horizontal—during which the heat is surrendered to the heater surfaces from whence it is picked up by the air stream.

CONTROLLED OPERATION

With standard controls, when the thermostat calls for heat the relay is closed and the solenoid valve opens the main gas supply to the burner. At the same time, the blower is started and circulation of the heated air begins. When the thermostat is satisfied, both the gas supply and blower stop automatically. A heat actuated blower control switch is furnished with V-5 and V-7 controls for delayed starting of blower.



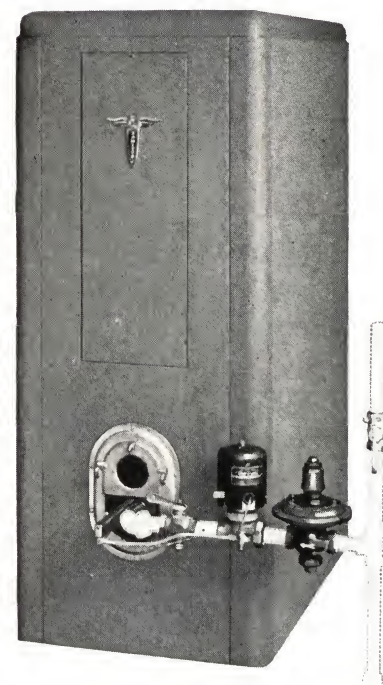
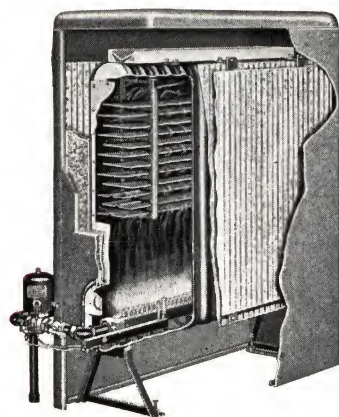
"GC" GAS-FIRED GRAVITY HEATERS

For the Modest New Home and for Improved Heating in the Old

Here is a new gravity type heater with the beauty of modern design combined with the dependability of higher priced Janitrol equipment. Design and construction features never before marketed in a gravity heater are characteristic of the Janitrol GC. Every new home of modest cost, every warm air remodeling job where blower circulation cannot be considered, is a logical place to install this Janitrol Gravity Heater.

Simple, Effective Design and Operation

Return ducts, connected to lower part of casing sides, deliver return air. The air flows straight upward over both sides of the streamlined, corrugated, heavy steel heat exchanger. Double, corrugated metal inner liners, attached to the heat exchanger, provide secondary heating surfaces for the air and reduce direct radiation losses from the Heater. The heated air picks up moisture from the pan-type humidifier atop the heat exchanger. Warm air leader connections are made in the top of the unit. Janitrol Gravity Heaters are equipped with the same efficient, quiet operating multi-inspirator burner furnished with CF and CA Conditioners. Models GC75-37, GC90-37 and GC120-37 are furnished with one heat exchanger. Models GC150-37 and GC180-37 have twin heat exchangers housed in one casing. Both types are shown on dimension drawings.



STANDARD EQUIPMENT

Includes cabinet finished in tapestry blue baked enamel; heavy steel plate corrugated heat exchanger with double, corrugated innerliners; multi-inspirator burner; main line shut-off cock; adjustable gas pressure regulator; automatic pilot with fittings; draft diverter; V15A motor gas valve with transformer and 25 ft. transformer wire; T11A Acratherm thermostat with 30 ft. triplex wire; evaporating pan, copper float tank, pipe strap valve and 10 ft. copper tubing with fittings.

Model 2GC120-37 consists of two individual GC120-37 units supplied with only one electric motor gas valve, one pressure regulator and one water pipe strap valve.

ENGINEERING DATA AND DIMENSIONS IN INCHES

Catalog No.	Rating Btu per Hour		Sq. In. Pipe Area		GAS CAPACITY Cu. Ft. per Hour			DIMENSIONS			
	Input	*Available At Register	†First Floor Rooms	‡Sec-ond Floor Rooms	550 Btu	800 Btu	10C0 Btu	A	B	Flue Diam.	§Gas Conn.
GC 75-37	75,000	51,000	390	300	136	94	75	31 $\frac{3}{4}$	50 $\frac{1}{4}$	4	3 $\frac{3}{4}$
GC 90-37	90,000	61,200	470	360	164	113	90	39 $\frac{3}{4}$	58 $\frac{1}{4}$	5	3 $\frac{3}{4}$
GC120-37	120,000	81,500	625	480	218	150	120	50 $\frac{3}{8}$	68 $\frac{7}{8}$	6	3 $\frac{3}{4}$
GC150-37	150,000	102,000	780	600	272	188	150	31 $\frac{3}{4}$	49	2-4	1
GC180-37	180,000	122,400	940	720	328	226	180	39 $\frac{3}{4}$	57	2-5	1
2GC120-37	240,000	163,000	1250	960	436	300	240	50 $\frac{3}{8}$	68 $\frac{7}{8}$	2-6	1 $\frac{1}{4}$

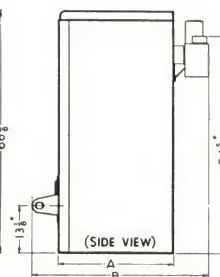
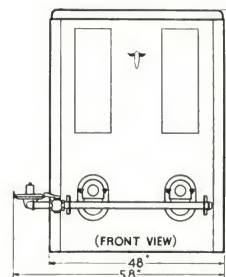
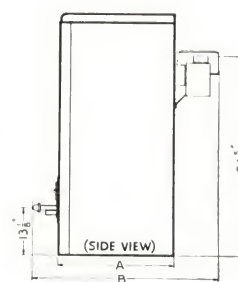
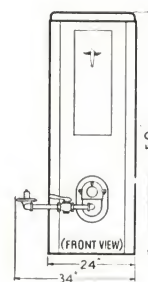
*Hourly Btu Available at Register allows for 15% heat loss from warm air ducts between bonnet and register. This is normal loss for average gravity installation. Longer than average ducts, type of duct covering, duct exposure, whether the basement is heated, etc., should be considered and heater sized accordingly.

†Leader pipe areas shown in this column are based on delivering 130 Btu per sq. in. of pipe area.

‡Leader pipe areas shown in this column are based on delivering 170 Btu per sq. in. of pipe area.

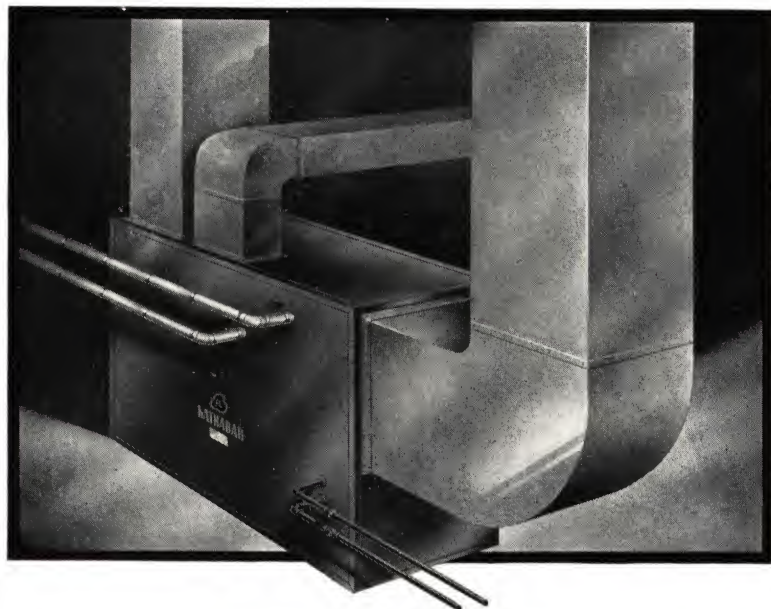
To select proper size unit for a two-story house: divide second floor warm air pipe area required by .75 and add to first floor warm air pipe area required. Select Gravity Heater on basis of area from column "First Floor Rooms."

§This is the size of the manifold connection—not the size of the gas supply line.



KATHABAR

AIR CONDITIONING EQUIPMENT



Standard Kathabar Unit Installation

**KATHABAR UNITS SUPPLY
COMPLETE YEAR-'ROUND
AIR CONDITIONING FOR
COMFORT AND FOR INDUS-
TRIAL PROCESSES...AVAIL-
ABLE IN STANDARD PACK-
AGE UNITS READY FOR
IMMEDIATE OPERATION**

SIMPLIFIED HUMIDITY REGULATION

Kathabar Air Conditioning equipment employs, as the dehumidifying agent, a lithium chloride solution called *Kathene*. The principle utilized is the difference in the vapor pressure between the air to be conditioned and the Kathene over which the air is passed. When the vapor pressure of the Kathene is lower than that of the air the Kathene absorbs moisture and the action is one of dehumidification. When the vapor pressure of the Kathene is higher than the air, the air absorbs moisture from the Kathene, thus humidifying the air. The vapor pressure of the Kathene is controlled by regulation of its temperature.

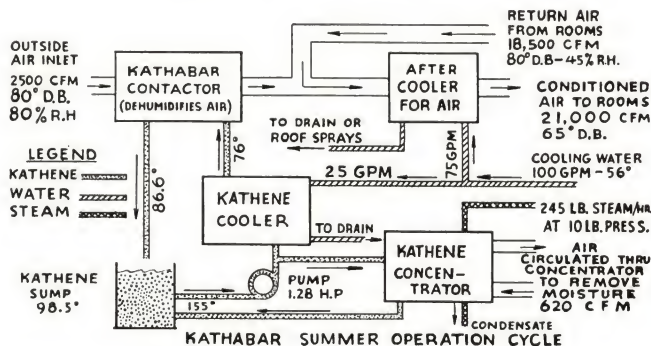
During the past two years Kathabar dehumidification equipment has been incorporated in many commercial and industrial air conditioning installations. Of particular advantage with the Kathabar system is the wide range of dehumidification which can be obtained under extremely accurate control. Of further significance is Kathene's permanency, requiring no replenishment nor replacement.

Now, the manufacturer of Kathabar offers a series of standard units for complete, year 'round air conditioning. Under fully automatic control, these units circulate, clean, wash and deodorize the air. During summer they dehumidify and cool the air and in winter they humidify and heat. One of the outstanding features of Kathabar air conditioning is the deodorizing and germicidal properties of Kathene.

In addition to these standard units, Kathabar equipment is available for any special application either for comfort purposes or for industrial processing. Complete information can be obtained by writing Kathabar Division, Surface Combustion Corporation, Toledo, Ohio.

OPERATION

Below is a diagram of Kathabar's typical dehumidification and cooling cycle. 2500 CFM of outside air enter the unit at 80° F. (dry bulb) and at 80% relative humidity. The *contactor*, extracts 53% of the moisture reducing the relative humidity to 31%. The dehumidified air is then mixed with 18,500 CFM of return air from the rooms. The entire 21,000 CFM are then passed through the water-cooled *after-cooler* and emerge for distribution to rooms at 65° F. This permits maintaining rooms at 80° F. and 45% relative humidity. Dehumidification and cooling are accomplished with 100 gallons per minute of 56° F. water and 245 lbs. of steam per hour, indicative of Kathabar's economical operation.



STANDARD KATHABAR UNITS

Unit No.	Capacity C.F.M.	Overall Dimensions (ducts not included)		
		Width	Depth	Height
6	200-800	29½"	100"	58½"
12	800-1500	29½"	113"	58½"
25	1500-3000	42"	128"	58½"
*50	3000-6000	43"	91"	67"

*Shipped in two sections for convenient handling.

**JANITROL****JANITROL****26
24****GAS-**

FOR COMMERCIAL AND INDUSTRIAL HEATING

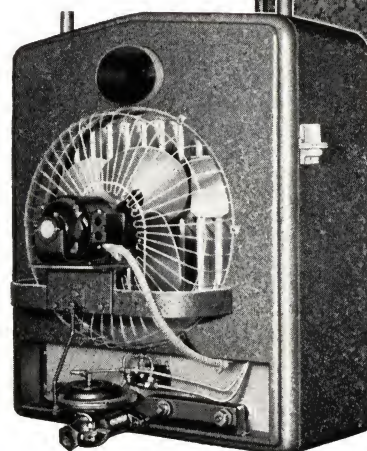
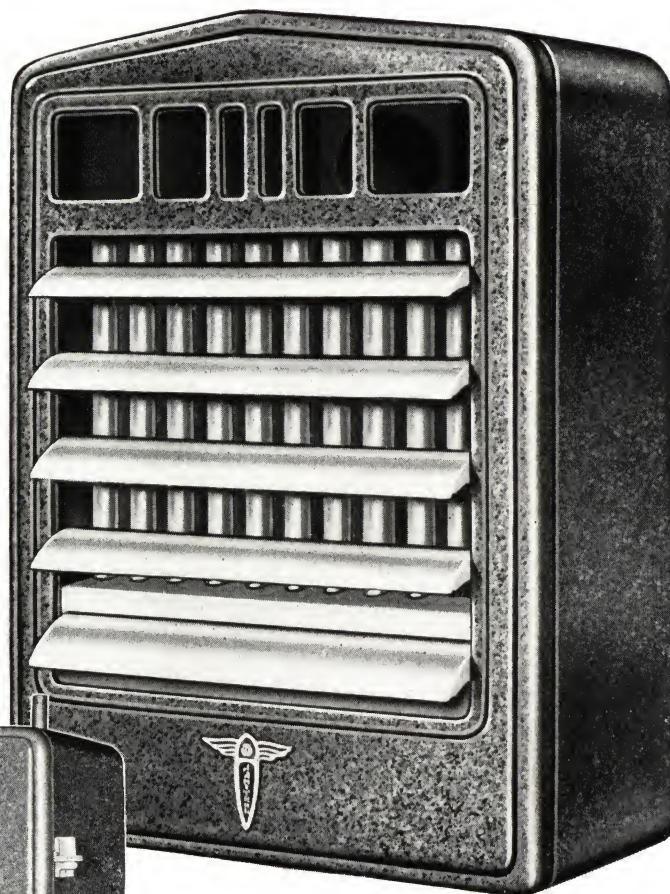
The Janitrol Gas-Fired Unit Heater is an independent, self-contained, automatic unit which generates heat by the burning of gas. No central heating plant or boiler is needed, no water is used, no firing attention is necessary and no fuel storage space is required.

The heaters are suspended from overhead with underside of heater about 8 feet from the floor. In this location, no obstruction is offered to the passage of people and no valuable floor space is occupied.

From its overhead location, the heater, by fan circulation of warm air, distributes heat where it is needed, and provides constant, uniform temperature. Circulation of the air also overcomes stratification and with it, high uneconomical ceiling temperatures.

Rapid response quickly brings up temperature when sudden blasts of cold air from opened doors chill the interior. Reduced temperatures, over-night and week-ends, afford economy of operation yet the automatic, thermostatic control of the heaters safeguards against freeze-ups.

For complete heating; for supplementary heating when existing heating capacity is insufficient; for replacement of worn out heating systems; for building expansion; for specific zone or spot heating; for periodic heating; for these and any commercial or industrial heating requirements, Janitrol Gas-Fired Unit Heaters provide a simple, effective method to obtain completely satisfactory results.

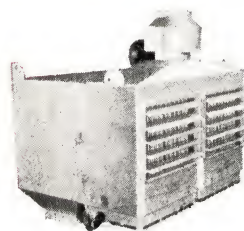


SERIES U AND SERIES C

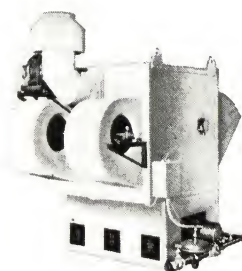
Series U and Series C each comprise seven models ranging identically in input from 45,000 to 200,000 Btu hourly input. Units of the same capacity in both series are exactly the same throughout with the exception of the metal used in the combustion chamber, heat exchangers or radiators and collecting chamber. In Series U heaters, the metal is chrome alloy steel; in Series C, ingot iron is used. Series U and Series C heaters are approved by the American Gas Association and listed by Underwriters' Laboratories as standard for general use. For installations in garages, airplane hangars, etc., specify Series UG or Series CG. Example: UG85-37 or CG-85-37.

LARGE CAPACITY, HEAVY DUTY UNITS

The 400-36 TWIN TYPE (left) and the S4000 (right) are both designed for large volume heating such as exposition halls, warehouses, factory buildings, etc. Both units are rated at 400,000 Btu input per hour. Capacities and other data are given in table at top of next page. Both units are equipped with squirrel cage type fan which permits the use of duct work for heat distribution. The 400-36 type is furnished with four suspension lugs. The S-4000 may be suspended or set on platform or floor. Both units finished in heat resisting aluminum paint. Complete details furnished on application.

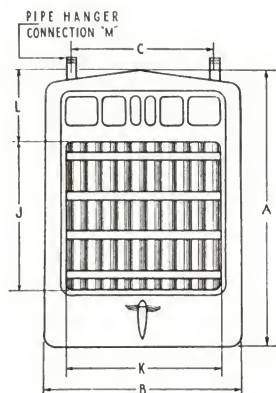


400-36 Twin Type

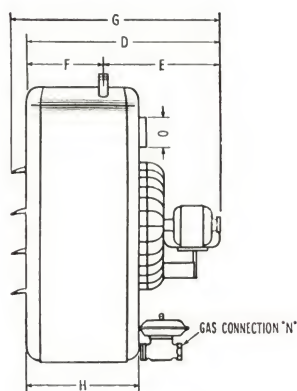


S4000

FIRED UNIT HEATERS



Front View



Side View

DIMENSIONS—INCHES

Catalog No.		A	B	C	D	E	F	G	H	J	K	L	M	N	*O
Series U	Series C														
U 45-37	C 45-37	29	18 3/8	11 1/2	23 3/8	12 3/8	10 3/4	25 3/8	15 1/4	14	13	7 1/2	1	3/4	4
U 60-37	C 60-37	29	22 3/8	15 1/2	23 3/8	12 3/8	10 3/4	25 3/8	15 1/4	14	17	7 3/4	1	3/4	4
U 85-37	C 85-37	36 1/2	22 3/8	15 1/2	25 1/4	14 3/4	10 1/2	27	15 1/4	20	17	9 1/4	1	1	5
U100-37	C100-37	36 3/4	26 3/8	19 1/2	25 1/4	14 3/4	10 1/2	27	15 1/4	20	21	9 1/2	1	1	5
U125-37	C125-37	37	30 3/8	23 1/2	26	16	10	27 3/4	15 1/4	20	25	9 3/4	1	1	6
U160-37	C160-37	36 3/4	26 3/8	19 1/2	35 1/4	20 1/4	14 3/8	37	23 3/4	20	21	9 1/2	1 1/4	1 1/4	7
U200-37	C200-37	37	30 3/8	23 1/2	35 1/4	20 1/4	14 3/8	37	23 3/4	20	25	9 3/4	1 1/4	1 1/4	7

*Flue opening is oval shaped. This is size of round flue pipe which can be formed to fit over flue opening collar.

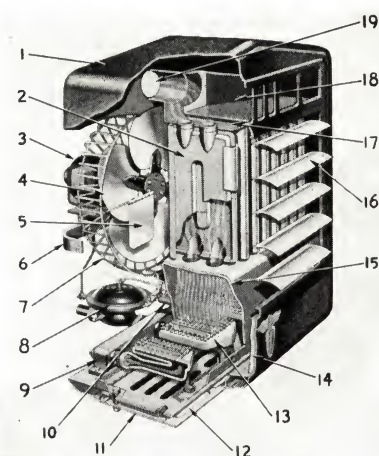
CAPACITIES OF STANDARD SERIES U AND SERIES C

Catalog No.		INPUT			OUTPUT Unit Vented		OUTPUT Unvented	Air Deliv.	Air Vel. At Heater	Motor Size	Fan Speed
Series U	Series C	Btu per Hr.	Cu. Ft. Gas per Hour		*Btu per Hr.	*Sq. Ft. Steam Rad. Equivalent	Btu per Hr.	C.F.M.	ft./min.	H.P.	R.P.M.
U 45-37	C 45-37	45,000	82	45	37,350	156	40,500	615	512	1/40	1080
U 60-37	C 60-37	60,000	109	60	49,800	207	54,000	775	492	1/40	1080
U 85-37	C 85-37	85,000	155	85	70,550	294	76,500	1535	689	1/15	1140
U100-37	C100-37	100,000	182	100	83,000	345	90,000	1600	590	1/15	1140
U125-37	C115-37	125,000	227	125	103,750	432	112,500	1695	513	1/15	1140
U160-37	C160-37	160,000	291	160	132,800	553	144,000	2090	758	1/10	860
U200-37	C200-37	200,000	364	200	166,000	690	180,000	2210	675	1/10	860
400-36 Twin Type		400,000	728	400	332,000	1380	360,000	5000	820	1	770
S4000		400,000	728	400	332,000	1380	360,000	5000	800	1	780

*Output based on effective heating of vented unit and when unit is located in room being heated.

CONSTRUCTION FEATURES — SERIES U AND C

1. Casing of heavy gauge sheet steel stampings finished in blue crinkle baked enamel.
2. Seam welded heat exchanger tubes or radiators. Center baffle divides hot rising gases into two streams resulting in better heat transfer.
3. Resilient mounted, split phase, fan duty motor. No radio interference.
4. Aluminum alloy fan of new and revolutionary shape, pitch and weight to operate with extreme quietness.
5. Sail actuated by air motion of fan opens and closes main gas valve as fan starts and stops.
6. Sturdy motor support attached to unit to overcome vibration.
7. Fan guard in two sections for easy removal.
8. Gas actuated automatic control valve opens gas supply to burners when pilot flame is burning and fan is turning, closes gas supply when fan stops or pilot flame fails.
9. Cast iron manifold distributes gas to brass burner orifices mounted in manifold.

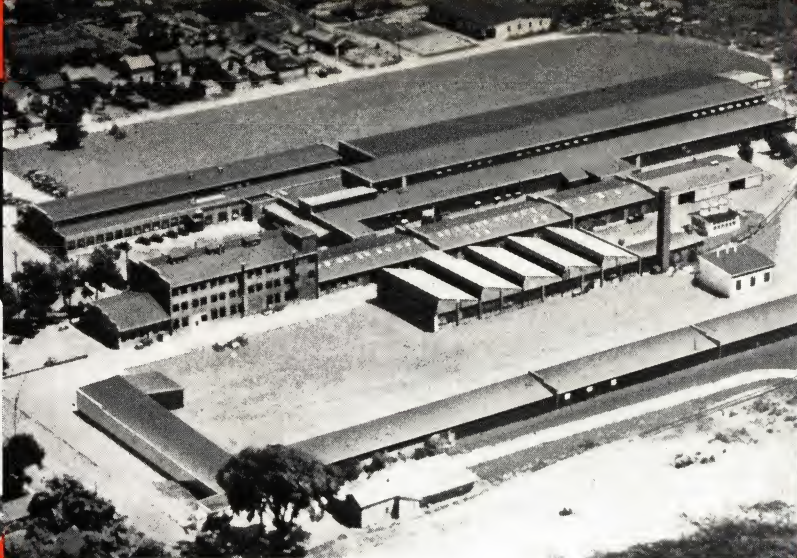


10. Bimetal thermal pilot assembly. Pilot flame must be burning before automatic gas valve supplying burners can open.
11. Bottom removable for easy access to burners.
12. All air for combustion taken through these ports.
13. Cast iron burners with cast raised ports accurately machined to gas specifications.
14. Insulation between combustion chamber and casing.
15. Combustion chamber housing burners; ample height to prevent flame impingement.
16. Adjustable horizontal louvers to direct warm air from heater. Vertical or combination vertical and horizontal available for special installations.
17. Collecting chamber into which burned gases empty from vertical radiators.
18. Built-in draft diverter prevents back drafts reaching combustion chamber.
19. Flue connection for flue pipe to chimney or stack.

Units are furnished with adjustable gas pressure regulator, main gas line hand valve and safety device to prevent overheating—not shown.



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PLANT



GENERAL OFFICES AND PLANT
TOLEDO, OHIO



TULSA, (OKLAHOMA)
PLANT

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The services of Janitrol engineers, trained experts in heating and air conditioning, are readily available to all architects, engineers, builders and heating contractors desiring assistance. Layouts, specifications, supervision of installations and servicing of equipment all are furnished from branch offices located to render close, competent, continuous cooperation, everywhere. Whenever you have an air conditioning or gas heating problem, phone, wire or write the nearest Surface Combustion office. A trained sales engineer is always at your service.

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